

that the breaks were all fresh, he himself having made them, but beyond that he could say nothing about the find, except that the quartz had a very close resemblance to that of the Wealth of Nations at Reefton.

Dr. Hector also exhibited a calf of *Kogia breviceps*, a rare species of whale, which had been taken from a cow harpooned near Petone, and a fossil ammonite belonging to the Permian formation, found near Nugget Point, in the South Island, by Mr. McKay, and measuring nearly eighteen inches in diameter.

---

THIRD MEETING. 18th July, 1883.

The Hon. G. R. Johnson, President, in the Chair.

*New Members.*—E. F. Clarke, J. S. M. Thompson, E. D. Bell.

1. "On Earth Tremors and Earthquakes," by Hon. Robert Hart.

ABSTRACT.

The author sought to establish that matter near the earth's surface is in a constant state of vibration; that matter so in a state of vibration is constantly seeking a level; that the level so sought is on no two consecutive days alike; and, incidentally, that the denudation of a portion of surface of a considerable amount of superimposed weight must tend to the elevation of the denuded surface by the pressure of the surrounding accumulations.

Sections and drawings were exhibited.

Mr. Cox was not prepared to entirely support the author's conclusions, as elevation must occur before denudation commences. As regards the origin of earthquakes, he was of opinion that to a large extent they were due to the gradual shrinkage of the solid earth, from the loss of heat by radiation—for, although we must consider the earth as a highly elastic solid body as a whole, as shown by a comparison of the theoretical and actual specific gravity of the surface rocks and the entire mass—still the earth was a solid, and the shrinkage due to loss of heat could only be attended by sudden and at times violent fractures, which are shown geologically in the faults which traverse the strata, and of which in more recent times we have actual evidence in the earthquake shocks. He did not mean to dispute that some earthquakes were due to volcanic energy, but these were of secondary origin and were of comparatively small extent, while those which had a more wide-spread character owed their origin equally with volcanic phenomena to the shrinkage of the solid earth.

Dr. Hector considered that in discussing the causes of earthquakes and of changes of relative level, the important part played by the interstitial water that is absorbed by rocks under certain conditions, was too much lost sight of.

---

FOURTH MEETING. 1st August, 1883.

The Hon. G. R. Johnson, President, in the chair.

*New Member.*—J. S. Rutherford.

1. "On a new Cuttle-fish, *Tremoctopus robsonianus*, obtained by C. H. Robson at Napier," by T. W. Kirk.

ABSTRACT.

*Tremoctopus robsoni*, n. sp.

This species differs from the description of the genus *Tremoctopus* as given by Adams, in that the web reaches to and extends beyond the tips of the superior arms.

that the breaks were all fresh, he himself having made them, but beyond that he could say nothing about the find, except that the quartz had a very close resemblance to that of the Wealth of Nations at Reefton.

Dr. Hector also exhibited a calf of *Kogia breviceps*, a rare species of whale, which had been taken from a cow harpooned near Petone, and a fossil ammonite belonging to the Permian formation, found near Nugget Point, in the South Island, by Mr. McKay, and measuring nearly eighteen inches in diameter.

---

THIRD MEETING. 18th July, 1883.

The Hon. G. R. Johnson, President, in the Chair.

*New Members.*—E. F. Clarke, J. S. M. Thompson, E. D. Bell.

1. "On Earth Tremors and Earthquakes," by Hon. Robert Hart.

ABSTRACT.

The author sought to establish that matter near the earth's surface is in a constant state of vibration; that matter so in a state of vibration is constantly seeking a level; that the level so sought is on no two consecutive days alike; and, incidentally, that the denudation of a portion of surface of a considerable amount of superimposed weight must tend to the elevation of the denuded surface by the pressure of the surrounding accumulations.

Sections and drawings were exhibited.

Mr. Cox was not prepared to entirely support the author's conclusions, as elevation must occur before denudation commences. As regards the origin of earthquakes, he was of opinion that to a large extent they were due to the gradual shrinkage of the solid earth, from the loss of heat by radiation—for, although we must consider the earth as a highly elastic solid body as a whole, as shown by a comparison of the theoretical and actual specific gravity of the surface rocks and the entire mass—still the earth was a solid, and the shrinkage due to loss of heat could only be attended by sudden and at times violent fractures, which are shown geologically in the faults which traverse the strata, and of which in more recent times we have actual evidence in the earthquake shocks. He did not mean to dispute that some earthquakes were due to volcanic energy, but these were of secondary origin and were of comparatively small extent, while those which had a more wide-spread character owed their origin equally with volcanic phenomena to the shrinkage of the solid earth.

Dr. Hector considered that in discussing the causes of earthquakes and of changes of relative level, the important part played by the interstitial water that is absorbed by rocks under certain conditions, was too much lost sight of.

---

FOURTH MEETING. 1st August, 1883.

The Hon. G. R. Johnson, President, in the chair.

*New Member.*—J. S. Rutherford.

1. "On a new Cuttle-fish, *Tremoctopus robsonianus*, obtained by C. H. Robson at Napier," by T. W. Kirk.

ABSTRACT.

*Tremoctopus robsoni*, n. sp.

This species differs from the description of the genus *Tremoctopus* as given by Adams, in that the web reaches to and extends beyond the tips of the superior arms.

that the breaks were all fresh, he himself having made them, but beyond that he could say nothing about the find, except that the quartz had a very close resemblance to that of the Wealth of Nations at Reefton.

Dr. Hector also exhibited a calf of *Kogia breviceps*, a rare species of whale, which had been taken from a cow harpooned near Petone, and a fossil ammonite belonging to the Permian formation, found near Nugget Point, in the South Island, by Mr. McKay, and measuring nearly eighteen inches in diameter.

---

THIRD MEETING. 18th July, 1883.

The Hon. G. R. Johnson, President, in the Chair.

*New Members.*—E. F. Clarke, J. S. M. Thompson, E. D. Bell.

1. "On Earth Tremors and Earthquakes," by Hon. Robert Hart.

ABSTRACT.

The author sought to establish that matter near the earth's surface is in a constant state of vibration; that matter so in a state of vibration is constantly seeking a level; that the level so sought is on no two consecutive days alike; and, incidentally, that the denudation of a portion of surface of a considerable amount of superimposed weight must tend to the elevation of the denuded surface by the pressure of the surrounding accumulations.

Sections and drawings were exhibited.

Mr. Cox was not prepared to entirely support the author's conclusions, as elevation must occur before denudation commences. As regards the origin of earthquakes, he was of opinion that to a large extent they were due to the gradual shrinkage of the solid earth, from the loss of heat by radiation—for, although we must consider the earth as a highly elastic solid body as a whole, as shown by a comparison of the theoretical and actual specific gravity of the surface rocks and the entire mass—still the earth was a solid, and the shrinkage due to loss of heat could only be attended by sudden and at times violent fractures, which are shown geologically in the faults which traverse the strata, and of which in more recent times we have actual evidence in the earthquake shocks. He did not mean to dispute that some earthquakes were due to volcanic energy, but these were of secondary origin and were of comparatively small extent, while those which had a more wide-spread character owed their origin equally with volcanic phenomena to the shrinkage of the solid earth.

Dr. Hector considered that in discussing the causes of earthquakes and of changes of relative level, the important part played by the interstitial water that is absorbed by rocks under certain conditions, was too much lost sight of.

---

FOURTH MEETING. 1st August, 1883.

The Hon. G. R. Johnson, President, in the chair.

*New Member.*—J. S. Rutherford.

1. "On a new Cuttle-fish, *Tremoctopus robsonianus*, obtained by C. H. Robson at Napier," by T. W. Kirk.

ABSTRACT.

*Tremoctopus robsoni*, n. sp.

This species differs from the description of the genus *Tremoctopus* as given by Adams, in that the web reaches to and extends beyond the tips of the superior arms.

Colour.—Above: dark-purple, lighter on the head. Below: bright silvery colour, with patches of rose. The web, which shows strong transverse lines, is of a pale rose colour.

Three specimens were obtained at Napier by Mr. C. H. Robson; but the pouches of two of them contained each an *Hectocotylus*, or third right arm of the male, peculiarly modified in order that it may perform certain functions, not yet fully understood, in connection with the propagation of its kind.

The species being new, it has been named after the discoverer, who was good enough to present the best specimen and also the *Hectocotylus* to the Museum.

2. "On the Occurrence of English Butterflies for the first time, at least in Wellington District," by T. W. Kirk.

ABSTRACT.

During the summer of 1881, the author captured in the Wellington Botanic Gardens, a butterfly which, on examination, proved to be the English Red Admiral or Alderman Butterfly (*Vanessa atalanta*). On several subsequent occasions specimens were seen, but contrary to their habit in England, they proved exceedingly shy and capture was impossible. However, examples of another English species, the *Small Tortoiseshell* butterfly (*Vanessa urticae*) were obtained.

The importation of plants and seeds from various countries is now so extensive, that it is almost certain numerous insects, some useful, some destructive, will be brought into the colony. In order, therefore, that the noxious forms may be more speedily detected, and that confusion may not hereafter arise in our lists and catalogues, it is important that the appearance in a district of any uncommon or foreign form should be carefully noted.

3. "On certain Phenomena of Burning Camphor in Water," by W. Skey.

ABSTRACT.

The peculiarity is that the camphor moves in the direction from which the wind blows, which is accounted for by the unequal output of oil around the camphor when displaced by the oil collecting on the off-side of the camphor and forcing it through the still water towards the wind. Experiments to illustrate this were exhibited.

4. "On the Origin of the Old Lake Basins of Otago," by A. McKay. (See Geol. Reports, 1883.)

ABSTRACT.

This paper dealt with two theories of the origin of the old lake basins of Central Otago—that of Dr. Hector, which accounts for these basins by the unequal movements of the land—and that of Professor Hutton, who advocates their having been excavated by ice.

The author agreed in the main with Dr. Hector's theory, but differed in the details as to how it was brought about, and with respect to the age of some of the beds found in these old lake basins. The author's theory is, that in Miocene times a large river flowing across North Otago was checked by the upheaval of the coast line, and converted into a series of swampy lakes, the eastern outlet of which was barred by volcanic rock, thus gradually deepening the lakes, and determining for a time the outflow of their waters by way of the Molyneux River. Subsequently, movements determined the area of the Taieri watershed, and compelled its waters to escape by their present channel along Strath Taieri.

Colour.—Above: dark-purple, lighter on the head. Below: bright silvery colour, with patches of rose. The web, which shows strong transverse lines, is of a pale rose colour.

Three specimens were obtained at Napier by Mr. C. H. Robson; but the pouches of two of them contained each an *Hectocotylus*, or third right arm of the male, peculiarly modified in order that it may perform certain functions, not yet fully understood, in connection with the propagation of its kind.

The species being new, it has been named after the discoverer, who was good enough to present the best specimen and also the *Hectocotylus* to the Museum.

2. "On the Occurrence of English Butterflies for the first time, at least in Wellington District," by T. W. Kirk.

ABSTRACT.

During the summer of 1881, the author captured in the Wellington Botanic Gardens, a butterfly which, on examination, proved to be the English Red Admiral or Alderman Butterfly (*Vanessa atalanta*). On several subsequent occasions specimens were seen, but contrary to their habit in England, they proved exceedingly shy and capture was impossible. However, examples of another English species, the *Small Tortoiseshell* butterfly (*Vanessa urticae*) were obtained.

The importation of plants and seeds from various countries is now so extensive, that it is almost certain numerous insects, some useful, some destructive, will be brought into the colony. In order, therefore, that the noxious forms may be more speedily detected, and that confusion may not hereafter arise in our lists and catalogues, it is important that the appearance in a district of any uncommon or foreign form should be carefully noted.

3. "On certain Phenomena of Burning Camphor in Water," by W. Skey.

ABSTRACT.

The peculiarity is that the camphor moves in the direction from which the wind blows, which is accounted for by the unequal output of oil around the camphor when displaced by the oil collecting on the off-side of the camphor and forcing it through the still water towards the wind. Experiments to illustrate this were exhibited.

4. "On the Origin of the Old Lake Basins of Otago," by A. McKay. (See Geol. Reports, 1883.)

ABSTRACT.

This paper dealt with two theories of the origin of the old lake basins of Central Otago—that of Dr. Hector, which accounts for these basins by the unequal movements of the land—and that of Professor Hutton, who advocates their having been excavated by ice.

The author agreed in the main with Dr. Hector's theory, but differed in the details as to how it was brought about, and with respect to the age of some of the beds found in these old lake basins. The author's theory is, that in Miocene times a large river flowing across North Otago was checked by the upheaval of the coast line, and converted into a series of swampy lakes, the eastern outlet of which was barred by volcanic rock, thus gradually deepening the lakes, and determining for a time the outflow of their waters by way of the Molyneux River. Subsequently, movements determined the area of the Taieri watershed, and compelled its waters to escape by their present channel along Strath Taieri.

Colour.—Above: dark-purple, lighter on the head. Below: bright silvery colour, with patches of rose. The web, which shows strong transverse lines, is of a pale rose colour.

Three specimens were obtained at Napier by Mr. C. H. Robson; but the pouches of two of them contained each an *Hectocotylus*, or third right arm of the male, peculiarly modified in order that it may perform certain functions, not yet fully understood, in connection with the propagation of its kind.

The species being new, it has been named after the discoverer, who was good enough to present the best specimen and also the *Hectocotylus* to the Museum.

2. "On the Occurrence of English Butterflies for the first time, at least in Wellington District," by T. W. Kirk.

ABSTRACT.

During the summer of 1881, the author captured in the Wellington Botanic Gardens, a butterfly which, on examination, proved to be the English Red Admiral or Alderman Butterfly (*Vanessa atalanta*). On several subsequent occasions specimens were seen, but contrary to their habit in England, they proved exceedingly shy and capture was impossible. However, examples of another English species, the *Small Tortoiseshell* butterfly (*Vanessa urticae*) were obtained.

The importation of plants and seeds from various countries is now so extensive, that it is almost certain numerous insects, some useful, some destructive, will be brought into the colony. In order, therefore, that the noxious forms may be more speedily detected, and that confusion may not hereafter arise in our lists and catalogues, it is important that the appearance in a district of any uncommon or foreign form should be carefully noted.

3. "On certain Phenomena of Burning Camphor in Water," by W. Skey.

ABSTRACT.

The peculiarity is that the camphor moves in the direction from which the wind blows, which is accounted for by the unequal output of oil around the camphor when displaced by the oil collecting on the off-side of the camphor and forcing it through the still water towards the wind. Experiments to illustrate this were exhibited.

4. "On the Origin of the Old Lake Basins of Otago," by A. McKay. (See Geol. Reports, 1883.)

ABSTRACT.

This paper dealt with two theories of the origin of the old lake basins of Central Otago—that of Dr. Hector, which accounts for these basins by the unequal movements of the land—and that of Professor Hutton, who advocates their having been excavated by ice.

The author agreed in the main with Dr. Hector's theory, but differed in the details as to how it was brought about, and with respect to the age of some of the beds found in these old lake basins. The author's theory is, that in Miocene times a large river flowing across North Otago was checked by the upheaval of the coast line, and converted into a series of swampy lakes, the eastern outlet of which was barred by volcanic rock, thus gradually deepening the lakes, and determining for a time the outflow of their waters by way of the Molyneux River. Subsequently, movements determined the area of the Taieri watershed, and compelled its waters to escape by their present channel along Strath Taieri.